



Attributions and perpetrators of incivility in academic surgery

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Abstract

Purpose Although incivility has been described in other specialties, little is known about the attributes and perpetrators of it in academic surgery. The goal of this study was to identify attributes and commonly associated perpetrators of incivility experienced by trainees and faculty at academic surgery programs in the U.S.

Methods A web-based survey including the Workplace Incivility Scale (WIS) and questions regarding attributions and perpetrators of incivility was sent to trainees and faculty at academic institutions across the U.S. In addition to descriptive statistics, multivariable regression models were built to determine the impact of perpetrator type and number on overall incivility scores.

Results We received 367 of 2,661 (13.8%) responses. Top three reasons for incivility were surgery hierarchy (50.1%), respondent's gender (33.8%) and intergenerational differences (28.1%). Faculty (58.6%), patients (36.8%), and nursing staff (31.9%) were the most reported parties responsible for incivility. Female surgeons reported experiencing incivility more frequently from all three top responsible parties (i.e., faculty, patients, and nurses) when compared to other gender identities. Additionally, those who reported faculty ($\beta = 0.61$, 95%CI 0.39–0.82) or nurses ($\beta = 0.23$, 95%CI 0.009–0.45) as perpetrators of incivility reported an increase in overall incivility scores.

Conclusions Incivility in surgery is frequently attributed to surgery hierarchy, gender, and intergenerational differences. Surgical trainees and faculty reported that faculty, patients, and nurses were the most commonly identified as responsible for uncivil events in the surgical workforce. Exposure to a greater variety of perpetrators of incivility increases overall levels of incivility, emphasizing the importance of eliminating incivility from all sources.

Keywords Incivility · Academic surgery · Culture · Environment · Workplace

Introduction

Institutions of all kinds, including healthcare, have prioritized improving the culture of their workplaces, recognizing that negative work environments can threaten team member satisfaction, well-being, and productivity, ultimately

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jeopardizing the mission of the organization [1–4]. Unfortunately, mistreatment in healthcare organizations including harassment, physical and emotional abuse, and racism have been well-described in the literature [5–7]. Just as these overt forms of mistreatment can negatively affect an individual's physical and mental health, productivity, and job commitment, less overt *incivility* can similarly have adverse effects on both the targeted individual and on the teams that comprise the organization [1, 8, 9].

Although *incivility* as a term, may be unfamiliar, it is likely that most individuals in surgery have witnessed, experienced, and/or engaged in these behaviors. Incivility is a term used to describe “rude, discourteous, or disrespectful actions” that may or may not have a negative intent behind them [3, 10]. Examples of these encounters include: (a) an operating room nurse ignoring the presence of a medical student; (b) residents joking about the anesthesia team contributing to the delays in their next case, and (c) a faculty member accusing a resident of incompetence in the operating room.

Operating rooms and surgical clinics are complex environments that require the optimal well-being of all team members to function and thrive. Incivility is especially threatening as it can lead to reduced work performance, effort, creativity, and collaboration [1, 11–13]. Our initial investigation on incivility found that the incivility in academic surgery is pervasive, affecting over 90% of our surgical team members. Additionally, incivility was not only strongly associated with work withdrawal, but it also had the most deleterious effects on individuals highly committed to their organizations, highlighting the profound effects of these uncivil behaviors [14]. Although a recent meta-analysis confirmed our findings and suggested that the prevalence of incivility is higher in surgery than in other specialties [15], little is known about what contributes to and who perpetuates these uncivil behaviors in academic surgery.

Unfortunately, there remains a paucity of studies evaluating incivility in academic surgery despite the tremendous impact incivility can have on our complex surgical teams. As such, we sought to identify attributions of incivility along with commonly associated sources. Given the structure of academic surgery, we initially predicted that surgery hierarchy would be a commonly cited attribution of incivility. Additionally, we hypothesized that faculty would be the most common source of incivility in this cohort.

Methods

Study design and population

We disseminated a web-based survey to residents, fellows, and faculty at 16 academic institutions across the United

States that had training programs in General Surgery, Integrated Thoracic Surgery, Integrated Vascular Surgery, and Integrated Plastic Surgery between mid-October and mid-November 2020. Sites were identified through the FREIDA™ (Fellowship and Residency Electronic Interactive Database) AMA (American Medical Association) database. Additional methodological details have previously been described [14]. Using publicly available organizational directories, study co-authors (K.B.S. and L.H.) identified names and email addresses of residents, fellows, and faculty at each program from August 12– August 31, 2020. Email addresses for a total of 2,844 individuals (1,684 faculty; 1,160 residents/fellows) were identified. Undeliverable email messages were received for 183 individuals (74 faculty; 109 residents/fellows), yielding a total of 2,661 individuals who were successfully sent emails. This study was deemed exempt by the University of Michigan Institutional Review Board (IRBMED).

Survey

After performing a literature search on workplace incivility, we designed a survey consisting of 33 total items that assessed demographic information, work and job withdrawal, organizational affective commitment, and the 12-item Workplace Incivility Scale (WIS). Of all 33 items in the survey, 21 items were included in this analysis (Appendix 1). Pilot testing and cognitive pretesting of the survey was completed with 21 faculty and residents [14]. Distribution of the survey to participants included a maximum of 3 email reminders.

Variables and measures

To measure workplace incivility, we created an index score (mean score of the 12 WIS items for each respondent; range: 1 = low incivility to 5 = high incivility) of all the 12 WIS items since all items loaded onto one factor (iterated principal factor loadings ranged between 0.67–0.97) and construct reliability was highest with all items included (Cronbach's alpha = 0.96). Incivility attributions were measured by asking respondents to identify the reasons for their workplace incivility experiences (Appendix 1). They were offered the following answer choices from which they could select all that apply: ancestry or national origins, gender, race, age, religion, physical appearance, sexual orientation, physical disability, surgery hierarchy, and intergenerational difference. Ancestry or national origins and race were not further broken down into specific categories (e.g., African American, Asian/Asian American, Hispanic/Latinx/Spanish, White, etc.). Each item was scored separately as present or absent for each respondent. Individuals responsible for uncivil acts were measured in a similar fashion where

respondents were asked to identify which individuals were the source of the uncivil events (Appendix 1). Answer choices included: faculty, resident/fellow, student, physician assistant/advanced practice provider, nurse, patient and other person. Lastly, we created a sum score of all groups identified as being sources of incivility to measure the overall exposure to multiple sources of incivility. Scores ranged between 0–7 where higher scores indicated increasing variety of sources of incivility.

Statistical analysis

Chi-square or Fisher's exact tests were used to compare sample characteristics by faculty and trainee. The top three attributions of workplace incivility were identified and then were compared by respondent characteristics using Chi-square or Fisher's exact tests as appropriate. Perpetrator types were also compared by respondent characteristics using Chi-square or Fisher's exact tests. Multivariable regression analysis was used to examine the effects of perpetrator type and exposure to multiple sources of incivility on overall workplace incivility scores while adjusting for position, gender,

race, region, and specialty. All analyses were conducted in STATA15 and significance was set at $p < 0.05$.

Results

In total, 367 of the 2,661 (13.8%) eligible individuals completed all items of interest for this study (i.e., WIS items). Of these, 183 (56.1%) were faculty and 143 (43.9%) were trainees. 58.9% of the faculty self-identified as male whereas 58.3% of the trainees who self-identified as female. Overall, the majority of respondents were White (70.4% faculty, 69.9% residents/fellows) and associated with general surgery (47.5% faculty; 62.9% residents/fellows). A summary of the cohort of respondents is depicted in Table 1, as previously reported in Santosa et al.[14]

Attributions of incivility

When respondents were asked to attribute the reason they experienced incivility, the most frequent selections were surgery hierarchy (50.1%), respondent's gender (33.8%) and

Table 1 Characteristics of survey respondents by position

	Residents/fellows		Faculty		<i>p</i> value
	Number	%	Number	%	
Gender	143	43.9	183	56.1	0.003
Female	82	58.2	72	41.1	
Male	59	41.8	103	58.9	
Region					0.357
East North Central	46	32.2	77	42.1	
Mid Atlantic	24	17	23	12.6	
South Atlantic	29	21.2	41	22.4	
New England	9	6.5	9	4.9	
Pacific	33	23.1	33	18	
Race/ethnicity*					0.542
African American or Black	6	4.4	5	2.8	
Asian American	31	22	30	16.8	
Hispanic or Latinx or Spanish Origin	10	7.4	9	5.1	
Native American or Alaska Native	0	0	1	0.57	
Native Hawaiian or Other Pacific Islander	1	0.74	2	1.13	
White	95	69.9	126	70.4	
Other	5	3.7	5	3.22	
Prefer not to answer	5	3.7	12	6.8	
Specialty					<0.001
Cardiothoracic surgery	12	8.4	21	11.5	
General surgery	90	62.9	87	47.5	
Plastic surgery	25	17.5	22	12	
Vascular surgery	12	8.4	21	11.5	
Other	4	2.8	32	17.5	

*Total is greater than 100% since respondents were able to self-identify as more than one race/ethnicity

intergenerational differences (28.1%). Less common reasons for incivility included the respondent's religion (1.63%), disability (0.54%), and sexual orientation (0.27%). Frequencies of attributions are presented in Fig. 1.

Incivility due to surgery hierarchy, gender, and intergenerational differences

Attributions of incivility by respondent demographics are summarized in Table 2. Overall, significantly more trainees reported experiencing hierarchy-based incivility than faculty (71.9 versus 47.7%, $p < 0.001$). Additionally, Asian-American ($p = 0.001$) and White ($p = 0.002$) surgeons were more likely to attribute incivility to hierarchy than other race and ethnicities. Otherwise, there were no differences in reports of hierarchy-based incivility between PGY level among residents, gender, region, or specialty.

Additionally, significantly more women surgeons were more likely to attribute incivility to gender compared to their male counterparts (77.1% versus 6.2%, $p < 0.001$). Junior and midlevel residents were also more likely to attribute incivility to gender compared to senior level residents (52.8% versus 34.6% versus 22.0%, $p = 0.005$). Compared to all other races and ethnicities, White surgeons were more likely to attribute incivility to gender ($p = 0.02$). No differences were detected in attributing incivility to gender by position (i.e., faculty versus resident/fellow), region, or specialty.

Trainees were more likely than faculty to attribute incivility to intergenerational differences (39.3% versus 27.8%, $p = 0.04$). Moreover, African American or Black ($p = 0.03$) and Asian American ($p = 0.001$) were more likely to report

incivility due to intergenerational differences than surgeons of other races and ethnicities. We did not detect any differences in attributing incivility to intergenerational differences by PGY-level among residents, gender, region, or specialty.

Perpetrators of incivility

The most identified groups responsible for example of incivility were faculty (58.6%), patients (36.8%) and nursing staff (31.9%). Residents (25.1%), physician assistants/advanced practice providers (14.2%) and students (5.2%) were less commonly selected by respondents (Fig. 2).

Incivility perpetrated by faculty, patients, and nursing

Table 3 summarizes the identified sources of incivility by respondent demographics. In our analysis, significantly more women reported faculty as a source of incivility compared to men (76.4% versus 61.5%, $p = 0.006$). Asian American ($p = 0.01$) and White ($p < 0.001$) surgeons also reported faculty as perpetrators of incivility more than other races and ethnicities. Incivility due to faculty was not different by position, PGY-level among trainees, region, or specialty.

Like faculty-driven incivility, patient-driven incivility was significantly more frequently reported by female surgeons than male surgeons (54.9% versus 33.5%, $p < 0.001$). Additionally, White surgeons reported patients as the source of incivility more frequently than other races and ethnicities ($p = 0.001$). Finally, there were differences by specialty with plastic surgeons (44.2%) most likely to report patients as sources of incivility and cardiothoracic

Fig. 1 Frequency of attributions of incivility

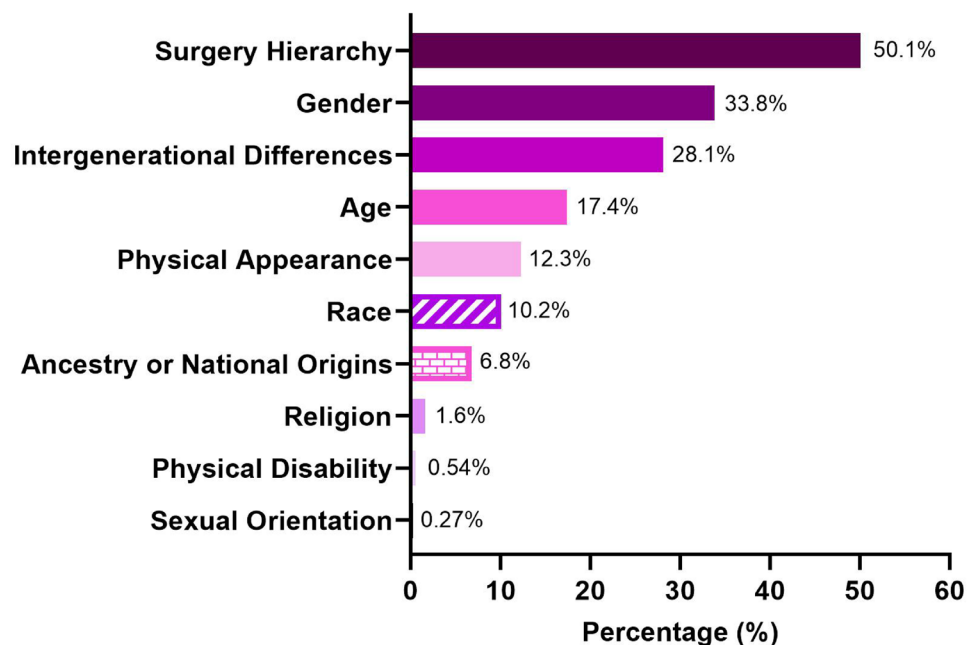


Table 2 Attributions of incivility by respondent demographics

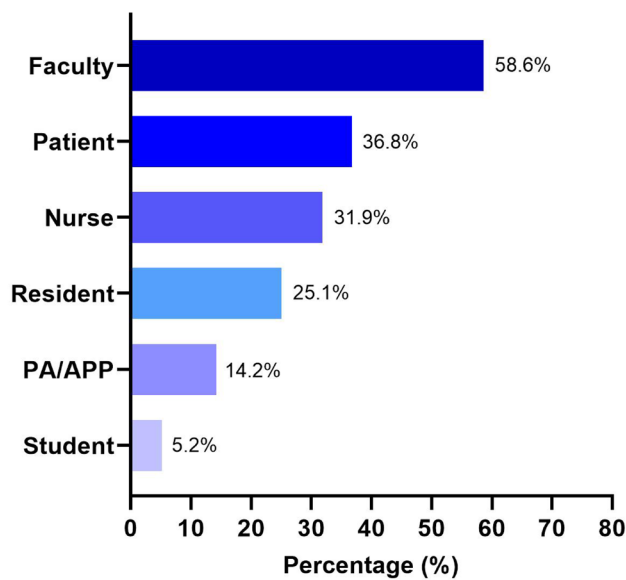
	Hierarchy-based incivility			Gender-based incivility			Intergenerational differences		
	Number	%	<i>p</i> value	Number	%	<i>p</i> value	Number	%	<i>p</i> value
Position			<0.001			0.24			0.04
Residents/Fellows	97	71.9		58	43		53	39.3	
Faculty	84	47.7		64	36.4		49	27.8	
PGY (residents/fellows only)			0.52			0.005			0.59
Junior	29	54.7		28	52.8		16	30.2	
Midlevel	25	45.5		19	34.6		18	32.7	
Senior	22	44		11	22		12	24	
Gender			0.641			<0.001			0.22
Female	87	60.4		111	77.1		53	36.8	
Male	92	57.1		10	6.2		48	29.8	
Region			0.12			0.18			0.05
East North Central	57	41.6		41	29.9		31	22.6	
Mid Atlantic	31	54.4		15	26.3		24	42.1	
South Atlantic	42	51.9		28	34.6		20	24.7	
New England	11	55		8	40		8	40	
Pacific	43	59.7		32	44.4		20	27.8	
Race/ethnicity									
African American or Black	8	80	0.11	6	60	0.09	6	60	0.03
Asian American	37	71.2	0.001	18	34.6	0.88	25	48.1	0.001
Hispanic or Latinx or Spanish Origin	12	66.7	0.23	9	50	0.2	5	27.8	1
Native American or Alaska Native	0	0	0.5	0	0	1	0	0	1
Native Hawaiian or Other Pacific Islander	1	50	1	0	0	0.56	0	0	1
White	125	56.8	0.002	85	38.6	0.02	68	30.9	0.16
Other	5	50	1	3	30	1	4	40	0.48
Prefer not to answer	7	41.2	0.47	6	35.3	1	6	35.3	0.58
Specialty			0.69			0.26			0.52
Cardiothoracic Surgery	19	48.7		7	18		10	25.6	
General Surgery	102	51.5		71	35.9		52	26.3	
Plastic Surgery	23	44.2		18	34.6		16	30.8	
Vascular Surgery	22	57.9		13	34.2		15	39.5	
Other	18	45		15	37.5		10	25	

surgeons (15.4%) least likely to do so ($p=0.012$). Otherwise, no differences were observed by position, PGY-level among trainees, or region.

Compared to faculty, trainees were significantly more likely to report experiencing incivility from nurses (51.9% versus 25.6%, $p<0.001$). Similarly, female and White surgeons were more likely to report nurses as perpetrators of incivility compared to male surgeons (46.5% versus 29.2%, $p=0.002$) and surgeons of other races and ethnicities ($p=0.008$), respectively. Reporting nurses as perpetrators of incivility was not different by PGY-level among trainees, region, or specialty.

Associations between perpetrators and overall incivility

Regressions for sources of incivility and number of incivility sources are presented in Table 4. After controlling for gender, specialty, position, region, and race, we found that the incivility score of respondents who reported faculty as a source had incivility scores that were 0.61 higher than those who did not report experiencing incivility from faculty ($\beta=0.61$, 95% CI 0.39–0.82). Similarly, individuals who experienced incivility from nurses incurred a 0.23 increase in their overall scores ($\beta=0.23$, 95% CI 0.009–0.45). In



PA/APP: Physician Assistant/Advanced Practice Provider

Fig. 2 Frequency of perpetrators of incivility, PA/APP, Physician Assistant/Advanced Practice Provider

contrast, we did not find that individuals who experienced patient-driven incivility had different incivility scores than others in the cohort ($\beta=0.003$, 95% CI -0.22 – 0.22) after controlling for other factors. Furthermore, after controlling for other confounders, we found that reporting greater variety of perpetrators were significantly associated with higher levels of incivility ($\beta=0.17$, 95% CI 0.09 – 0.26).

Discussion

Delivering optimal surgical care requires effective communication and collaboration between team members of different skill sets, experience, and backgrounds, emphasizing the importance of fostering psychological safety through the elimination of incivility in clinical learning and work environments. Unfortunately, previous studies have demonstrated that incivility in surgery is not only widespread [15] but can also result in serious consequences to an organization at-large [14]. By leveraging a national cross-sectional survey, we found that the top attributions of incivility in surgery are surgery hierarchy, respondent gender, and intergenerational differences, and that common individuals responsible of uncivil acts in the surgical workforce are faculty, patients, and nurses. Our analysis further suggests that being exposed to a greater variety of perpetrators of incivility was strongly associated with an increase in overall incivility.

Perhaps the most interesting findings in our analysis were those related to perpetrators of incivility. For example,

female surgeons were significantly more likely to report experiencing incivility than their male colleagues from all three top perpetrator groups (i.e., faculty, patients, and nurses). Consistent with previously published studies across different workspaces showing that women experience more incivility than men [16–19], our findings may be partly explained by the theory of “role congruity.” [11] Role congruity refers to a phenomenon in which individuals respond more positively towards other individuals whom they perceive as adhering to and negatively to those who do not [11]. Given that surgery has historically been a male-dominated specialty, it is possible that female surgeons experience more faculty-, patient-, and nurse-driven incivility than males due to implicit bias from outdated perceptions of the demographics of surgeons. As overt gender discrimination is no longer tolerated in workspaces, perhaps selective incivility such as a scrub technician being rude to a female surgical intern or a faculty member interrupting a female fellow during rounds could explain the persistence of gender disparities in academic surgery, particularly at the highest levels [20–22], where power is most concentrated [23]. Therefore, we advocate for more robust studies evaluating selective incivility within both faculty and resident/trainee subgroups based on gender identity in academic surgery and for leaders in healthcare organizations recognize the potential impact of uncivil behaviors on efforts to achieve gender equity.

In addition to finding that female surgeons were more likely to report experiencing incivility from faculty, patients, and nurses, we interestingly found that White surgeons were also more likely to report all three sources of incivility compared to other races and ethnicities. We sought to investigate if there was any overlap in experiences between females and Whites. Surprisingly, none of the perpetrator outcomes were significantly associated with an interaction between gender and White race (Appendix 2), highlighting that the problem of incivility in academic surgery is likely broader than initially hypothesized. In addition, it is imperative to consider that our analytic cohort consisted of few individuals of racial and ethnic minorities, and likely did not capture the full spectrum of their experiences with workplace incivility. Future robust qualitative studies of incivility across different racial and ethnic groups are warranted to better understand the scope of the problem.

Our findings additionally suggest the source of incivility may impact the severity of incivility felt by an individual whereby individuals who reported experiencing incivility from faculty or nurses had significantly higher overall incivility scores than all others. Given the influence that faculty-driven incivility can have on surgical team members, it is important for leaders in Departments of Surgery to foster and recruit for and instill a culture of civility [24, 25]. Of note, there was no difference in frequency of reporting faculty as sources of incivility between trainees and faculty, suggesting

Table 3 Perpetrators of incivility by respondent demographics

	Faculty			Patient			Nursing		
	Number	%	<i>p</i> value	Number	%	<i>p</i> value	Number	%	<i>p</i> value
Position			0.902			0.083			<0.001
Residents/Fellows	93	68.9		66	48.9		70	51.9	
Faculty	119	67.6		68	38.6		45	25.6	
PGY (residents/fellows only)			0.14			0.51			0.49
Junior	35	66		24	45.3		17	32.1	
Midlevel	40	72.7		19	34.6		12	21.8	
Senior	27	54		20	40		13	26	
Gender			0.006			<0.001			0.002
Female	110	76.4		79	54.9		67	46.5	
Male	99	61.5		54	33.5		47	29.2	
Region			0.55			0.11			0.47
East North Central	74	54		49	35.8		49	35.8	
Mid Atlantic	37	64.9		26	45.6		18	31.6	
South Atlantic	46	56.8		21	25.9		20	24.7	
New England	12	60		9	45		5	25	
Pacific	46	63.9		30	41.7		25	34.7	
Race/ethnicity									
African American or Black	8	80	0.21	3	30	0.75	4	40	0.73
Asian American	39	75	0.01	23	44.2	0.28	20	38.5	0.34
Hispanic or Latinx or Spanish Origin	14	77.8	0.14	9	50	0.32	4	22.2	0.45
Native American or Alaska Native	0	0	0.41	0	0	1	0	0	1
Native Hawaiian or Other Pacific Islander	1	50	1	1	50	1	1	50	0.54
White	147	66.8	<0.001	96	43.6	0.001	82	37.3	0.008
Other	6	60	1	5	50	0.51	2	20	0.51
Prefer not to answer	12	70.6	0.45	6	35.3	1	8	47.1	0.19
Specialty			0.32			0.012			0.501
Cardiothoracic Surgery	23	58.9		6	15.4		9	23.1	
General Surgery	118	59.6		81	40.9		67	33.8	
Plastic Surgery	26	50		23	44.2		19	36.5	
Vascular Surgery	27	71.1		10	26.3		9	23.7	
Other	21	52.5		15	37.5		13	32.5	

Table 4 Multivariable regressions of incivility score by perpetrator types and perpetrator diversity

	Incivility			
	β coefficient	95% CI LL	95% CI UL	<i>P</i> value
Faculty as perpetrator	0.606	0.391	0.819	<0.001
Patient as perpetrator	0.0028	− 0.216	0.221	0.98
Nurse as perpetrator	0.232	0.009	0.454	0.041
Number of perpetrator groups	0.174	0.093	0.256	<0.001

*Separate regression models were used for each factor and all models controlled for position, gender, race, region, and specialty

CI Confidence Interval, LL lower limit, UL upper limit

that being a faculty member does not necessarily shield an individual from experiencing uncivil behaviors from another faculty member. Nurse-driven incivility was also associated with higher levels of overall incivility, supported by a

previous study of medical interns who reported nurses rather than physicians as most frequent perpetrators of uncivil behavior [26]. In our analysis, we found that nurse-driven incivility was experienced by nearly one-third (31.9%) of

surgical trainees and faculty, demonstrating that incivility not only affects all individuals, but can also be perpetuated by all members of an organization. In contrast to faculty- and nurse-driven incivility, we did not find an increase in overall incivility scores among individuals who reported experiencing incivility from patients compared to all others. Perhaps this can be explained by the idea that physicians may be trained to excuse inappropriate patient behaviors and prioritize patient care above their own self-care.

Finally, our analysis demonstrates that exposure to incivility from multiple groups is strongly associated with increased levels of incivility overall. Therefore, it is imperative for institutions and organizations to make a concerted effort to eliminate incivility from all sources. While well-intentioned, we should move away from isolated efforts within an individual clinical department or unit in order to create integrated solutions that capture the perspectives and experiences of all team members.

Limitations

We acknowledge the limitations of our study. First, we had a response rate of 13.8%, which could limit generalizability; however, there is no standard for the minimum response rate [27]. Additionally, others have demonstrated that response rate may not be a good predictor of non-response error [28, 29]. Selection bias may have affected responses as individuals who have experienced incivility may have been more likely to respond to our survey compared to those individuals who have not experienced incivility. However, when we compared demographics between survey respondents to the overall national population of surgery residents and faculty, there were no significant differences, likely supporting the idea that survey respondents were likely representative of the population of interest. Second, as this was a cross-sectional study, results may be limited to the time in which surveys were completed (i.e., mid-October to mid-November 2020). Survey dissemination occurred during the height of the COVID-19 pandemic, a time of heightened stress and uncertainty for most respondents, which could have contributed to responses. We advocate for future studies evaluating incivility in academic surgery during less uncertain times. Additionally, it is possible that the use of masks during the COVID-19 era may have contributed to misinterpretations in communication (e.g., a hostile look, stare or sneer), leading to an inflation in prevalence estimates of incivility. Third, we did not include all subspecialties in surgery, which may limit generalizability to other surgical trainees and faculty. Fourth, incivility and an individual's experience with uncivil events is personal and subjective. One individual may perceive an event as uncivil, and their colleague may have a different perception. This does lead to a broad definition of incivility, but it does not minimize the impact of perceived incivility

on the individual. Fifth, given the preponderance of older males in surgery, there is possible conflation of hierarchy and gender as sources of incivility. For example, 45.8% of females reported both gender- and hierarchy-based incivility compared to 3.7% of males. Additional studies are necessary to investigate these findings. Finally, as an observational study, we cannot draw causal inferences based on observed associations.

Conclusion

Overall, surgery trainees and faculty most frequently attributed incivility to surgery hierarchy, their gender, and inter-generational differences. Faculty, patients, and nurses were the most frequently cited sources of workplace incivility in academic surgery. Incivility perpetuated by faculty and nursing staff and overall exposure to incivility from a greater variety of sources were strongly associated with higher degrees of incivility altogether, highlighting the need for concerted efforts to eliminate incivility at all levels.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s44186-023-00129-1>.

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Declarations

Conflict of interest The authors have no relevant financial or non-financial interests to disclose.

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